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PROGRESS REPORT
INVESTIGATIONS OF EARLY NEW WORLD MIGRATIONS IN THE FORT LIARD REGION, N. W. T.

FORT LIARD ARCHAEOLOGICAL PROJECT

1966 SEASON

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INTRODUCTION

The problem of archaeological correlation between the isolated northern regions and ultimately Siberia, with the more extensively examined and interpreted areas to the south, has been hindered by a lack of clear definition of cultural sequence through the transition zone. Evidence of considerable population movement over a very long period of time has been noted in archaeological investigations throughout the north. On the earliest levels indications of a number of broad traditions appear to have developed in the extreme northwest section of the continent, subsequently moving eastwardly or south eastwardly into the heart of the continent. Tracing the cultural developments and their changes through this traverse of the broad interior tundra, taiga and northern boreal forest should ultimately illuminate the effects of the movement on the cultures and way of life of the people. This area stretches easterly from central Alaska, through the central and southern territories, into the northern

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sections of Alberta, Saskatchewan and Manitoba. Work throughout this region has been understandably restricted to widespread local investigation. Relationships from this area, south into Alberta, British Columbia, Saskatchewan and further into the United States are inferred by general similarities in some explored cultural manifestations, particularly at certain time levels. The problem of correlation out of the north must be accompanied or preceeded by a correlation within the north, defining the internal changes and absolute chronology to be found in the various traditions that have previously been outlined. These two objects are the primary purpose of the Fort Liard Archaeological Project.

The project is centred around the village of Fort Liard, in the extreme southwest corner of the Northwest Territories. The main archaeological sites lie in the environs of Fisherman Lake, a remnant of an ice frontal lake, lying a few miles north of Fort Liard. This region occupies a preferred intermediate area between the southwest Yukon - northern British Columbia to the west of the Cordillera, and the broad MacKenzie lowlands to the east. It also lies along the eastern edge of the Cordillera, the southern part of the boreal forest and the northern extremities of the plains. During the climatic oscillations of the late Pleistocene it has varied from tundra through to plains savannah environment.

Of the practical routes for early man migration from the west into the heart of the continent; whether it proceeded along the Arctic coast, across the wide Yukon plateau or up the upper Yukon River, all must pass either close to, or directly through the Fort Liard region. Discoveries on the high terraces of Fisherman Lake appear to

represent at least one such group as they settled in the valley at one stage of their movement.

With the strategic geographical location, favourable environmental conditions and relative variety of subsistence essentials, the Fisherman Lake area would be expected to have been visited by a multitude of different cultures. From the results of this first season, it is readily apparent that this is so.

One of the most intriguing broader problems in archaeology is the matter of human population movement, not only in terms of the record or event, but also of the mechanics, motivations and patterns. The processes that act toward human migration have changed through the development of mans' use and control of his environment and the study of this relationship must be based on the aggregate of much data from many areas and disciplines. In any case, as data becomes available, the archaeological record should give some hints of the changes in cultural processes. Combining these changes with geological, palaeobotanical, palaeozoological and general environmental reconstruction, the motives and eventually the patterns should evolve. It would seem that change would be more quickly manifested and be archaeologically evident on a low cultural level.

The ethnological inhabitants of much of the inland subarctic region were and are Athabascan speaking tribes of fairly simple culture. No facet of their culture was developed strongly. On its peripheries and in the enclaves of Athabascan speaking people in coastal California, southern Great Basin, in southern British Columbia or even in the case of the Sarci, the Athabascan culture was submerged to the dominant neighbour. The archaeological material for

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such a group must offer evidence for the evolution of such a simple parent culture. It would appear that the purest Athabascan culture should be exposed in the geographical heart of the occupation area, which would be in the Fort Liard region. In conjunction with other late Athabascan archaeological data it is anticipated that the Direct Historical Approach might reveal pertinent generalizations toward the general problem of population movement.

To be more specific in regard the problem, work through the northern area has led to definition of a series of traditions visualized as representing adaptations to general environments or conditions. The biotopic adaptation on the earliest levels is envisaged as an initial development in or near the Bering Straits region, with probable subsequent specialized adaptation as the environment changed through the route of movement. On late levels the adaptation was dictated in addition, by normal cultural contact and diffusion. The cultural assemblage of each tradition is made up of components derived from their inheritence, their development and subsequent contact. It follows therefore, that with changing environment, however subtely, and human encounters, culture must change as the movement progresses.

The first years program of the Fort Liard Archaeological Project indicated that this unusually rich archaeological area has a long record of human occupation in a unique environmental position. The area therefore is providing an intermediate view of the cultural flow and content within the north and between the arctic and the temperate zone.

An archaeological reconnaissance trip of 1965 undertaken with Dr. R. S. MacNeish into the Fort Liard area had indicated that this

might be the place to supply some of the missing data. This trip was a return to an old area of interest of Dr. MacNeish. In 1952, he had dug and reported on the Pointed Mountain Site, JcRw 2, a microblade workshop site.

During the winter of 1965-6 applications were made to the National Research Council for a research grant under the sponsorship of Dr. R. S. MacNeish and through the University of Alberta (Calgary) - (now University of Calgary).

In the spring of 1966 preparations for the expedition were made in Calgary, with equipment and supplies being moved north by transport truck in mid-May. 'Break-up' in the area was about the first of May, and river traffic commenced during mid-May, so the project start was scheduled for the first of June. For this first season an operating period of 2-1/2 months was planned. The majority of the permanent field equipment was supplied by the Department of Archaeology, University of Calgary, with expendable items purchased from the grant.

The excavation and project was directly supervised by the writer, a graduate student at the University of Calgary. K. Adkisson, student assistant, was enlisted from the University of New Mexico. Dr. R.S. MacNeish gave the general supervision and considerable personal assistance during the early phases of the field project. The crew was under the foremanship of Willie McLeod and ex-trader and special constable from Fort Liard, who had worked with Dr. MacNeish during his earlier work in the Fort Liard area. The remainder of the men on the crew, with the exception of Stephen Millar, were enlisted from the indian village of Fort Liard. With few exceptions they proved to be

most satisfactory archaeological workers.

The local sequence and the basic time limitations for human occupation of the area have been so controlled by the late geological history, it was felt necessary to enlist the help of Dr. O.L. Hughes, of the Pleistocene section of the Geological Survey of Canada. His assiduous testing program on the highest terrace turned up what will prove to be the earliest site in the area and probably in the north. In addition, Mr. C. Eyman, Sessional Lecturer in the Department of Archaeology, University of Calgary, used the project camp as a base for his investigations.

The project was not only assisted but made more pleasurable by the following persons: Cpl. and Mrs. R. Gilhome of the R.C.M.P., Miss Herta Richter of the Nursing Station, Mr. and Mrs. Grant Scott of the Hudsons' Bay Co. and Mr. and Mrs. Gary Smith, school teacher, all of Fort Liard; Mr. and Mrs. Frank Kovaks, Pan American Petroleums expediter at Fort Nelson and Mr. Harold Shenton, Loffland Bros. Drilling Co. of Canada, Calgary, Alberta. The help of Pan American Petroleums Ltd. and Loffland Bros. Drilling Co. of Canada on logistics and communication is gratefully acknowledged.

James Millar & Associates Ltd. contributed the use of their float equipped aircraft for the duration of the project.

PROJECT SCHEDULE

The camp was set up during the last few days of May. The main sites were cleared, surveyed and staked for control. Excavation at JcRw 8, McLeod Mountain site, commenced on June 4th. During the period June 4th to July 2nd, this site was excavated and test excavations carried out on JcRw 3, JcRw 11 and JcRw 1.

The period July 2nd to 16th was spent surveying the lake side topography, tying together the main sites at the northwest end of the valley and collecting specimens for a botanical study.

From the 16th of July to the 16th of August the work was concentrated on JcRw 3 as it represents the potential body of the reconstruction data. The other sites can be interdigitated into this basic sequence. In addition, JcRw 8 was excavated further, sites JcRw 10 and JcRw 14 were briefly tested.

A preliminary archaeological survey of the valley was commenced and will be completed early next season.

GEOLOGICAL STUDY

The data and samples are being analysed at the present time by Dr. Hughes of the Geological Survey and J. Day of the Department of Agriculture in Ottawa. The following is a tentative reconstruction, based mainly on the archaeological excavations. It should be appreciated that this is preliminary and will be further discussed in the light of the geological, pedological and palynological findings. The 1967 program will include more time by Dr. Hughes and possibly Mr. Day in the field, following which a more definite reconstruction will be possible.

The area with which the project is concerned is a shallow notch to the southwest of the Liard Range, of the eastern Cordillera. The short valley is formed by a westerly spur of the Liard Range bifurcating some 20 miles north of the southern extremity of the range where it is truncated by the northeasterly course of the Liard River. This spur similarly terminates to the south of Pointed Mountain, a sharp peak dominating the west side of the valley.

A few modified glacial features indicate that at least the southern portion of the notch was glaciated by a maximum advance of the Laurentide icesheet. The lake terraces are developed on the upper levels and very low levels only. Varved clays at a depth of 4 - 6 feet on the upper terraces indicate proglacial lake inundation during the early glacial oblation period.

During the late Pleistocene, then, the area was glaciated by a Laurentide maximum, followed by an 'ice front' lake flooding back to the mountain front, with melt water escaping north through the Kooteneelee valley to the west and north. The lake history included two severe drops from the original 200 foot depth, first to about 70 feet due to the glacial retreat, being held at that height for some time by a glacial till dam. The period is indicated to be of some duration by the well developed mature soil profile found in the top of the glacial till terrace above that level. The dam broke allowing a fairly rapid escape of the contained water down to roughly its present height. Since this time the water level fluctuated up to 14 feet above its present high water point. The second drop is visualized to have occured during the late stages of a loess blowing period. The loess appears to have derived from the glacial outwash features to the south and likely followed closely a glacial retreat. It is possible that the loess originated from a glacial advance later in time than that which deposited the till. It should be noted that few glacial features are evident in or to the west of the valley. Much modification of the glacial topography is noted.

The lake outline has steadily changed due to alluviation from the long slopes from the north end of the valley. Drainage suggests that

the major source of alluviatory sand and muck is the small stream entering from the north and northeast. The original lake shore was found to have been some 10,000 feet to the north, where the sandy lake shore is still preserved over most of its outline.

A secondary soil profile developed in the loess and lake silt-loess deposits of various thicknesses on the terraces. The upper terraces, (the top and the JcRw 8 terrace) have a thick loess section overlying a lake clay well developed into a mature soil. The lower terraces have, in places, very thin layers of loess, over mixed loess and silt with some layers of loess, silt and clay. In some sections of JcRw 3 the loess, loess and silt, and loess, silt and clay layers are alternated with slopewash material.

GENERAL EXCAVATION TECHNIQUE

All sites were cleared initially to arbitrary limits defined by physiography and practicability. A bench mark was established, through which two coordinate datum lines were run, with meter stakes set over the proposed excavation area.

Excavation progressed by meter squares, generally alternating, leaving meter blocks, which were subsequently removed to form trenches. During the initial stages only, a system of arbitrary 10 cm. levels were removed. The subsequent excavation was to geological, or in some cases, cultural levels. All final profiles were sketched and in most squares, intermediate profiles were drawn, details sketched and plans drawn.

Artifacts were measured in three dimensions, with horizontal measurements taken from the southeast corner of the square, and vertical measurements both from the surface of the soil profile and

in many cases from a geologically structural floor, for example, the top of the till section. All artifacts were bagged, numbered and inventoried at the site or in camp. The original intention had been to have all artifacts and lithic material washed and numbered in the field. This proved impractical with the limitations imposed by space and time.

EXCAVATION REPORT

The program resulted in the excavation of one site, partial excavation of two sites, the testing of three others and a preliminary survey of the geological history of the Fisherman Lake area.

The 1966 program must be considered completely successful. Two sites, JcRw 3 and JcRw 8, were found to be stratified. Analysis to date indicates 7 separate components in JcRw 3, and 2 in JcRw 8. One other site appears to represent a double component, while the other 5 appear to be single component. The single occupation sites show similarities to, but are not the same as, any of the stratified components. A large sample of soil specimens from various horizons will be analysed this coming winter. The 40 carbon samples collected will be further examined for the best 12 which will be dated. It is hoped that this will provide an absolute chronology framework for the sequence. With the palaeoenvironmental studies and geological reconstruction the archaeological sequence will be well defined.

(i) JcRw 8 - McLeod Mountain Site

The occupation area was located on a medium lake terrace about 75 feet above the present high lake level. The ground surface slopes gently toward the north and the steep terrace step to the next lowest terrace. (Maps 1 & 2)

A total of 101 meter squares were excavated on this site. Cultural

materials were found in 2 distinctive general horizons and 1 vague intermediate level that will require considerable investigation. The earliest material consisted of choppers, unifacial flake tools and flakes all found on the top of a mature soil profile over about 4 feet of varved glacial lake sediments lying on till. Over the soil development lay a fine mottled yellow and sometimes pinkish bleached loess, the origin of which is to be investigated. In the body of the loess, at various levels, a few fairly undistinguished artifacts and flakes were found. In the top of the loess and below the humus base, a small sample of points, side blades, end scrapers and bifacially worked tools was recovered.

The lowest level below the loess and on the soil development, from the initial examination appears related in some ways to the unifacial British Mountain tradition but in some tool types with the Cordilleran material represented by the lowest component of JcRw 3. It is possible that this component represents a late British Mountain period in this area just prior to the introduction of the Asian characteristics of the Cordilleran, such as the bipointed projectile point, blades and blade tools, multi-burins, etc.

The upper component, tentatively placed late in the sequence shows similarities with the arctic coast, and similar material in south central Alaska.

A series of soil samples, ash samples, bone samples and a number of carbon samples were collected for future laboratory investigation. The carbon samples will be cleaned and evaluated for possible amenability to C14 dating. One charcoal sample was collected from the lowest horizon.

(ii) JcRw 11 Site

This site was tested with a pattern of 7 meter squares from which a small sample of stone flakes and tools was obtained. The sample recorded infers a Northwest Microblade type site and this cultural period in the area was well defined by Dr. MacNeish at the Pointed Mountain site JcRw 2. This site lies on a terrace-like feature about 12 feet below the McLeod Mountain site. (Maps 1 & 2)

(iii) JcRw 3 - Klondike Site

Several hundred feet east, and some 60 feet below the McLeod Mountain site, the Klondike site was found on a low terrace, some 12 feet above present day high water. A total of 192 meter squares were dug along the upper side of a cleared trail. Fortunately, the trail was built and used only in the winter when the tough winter frost protected the soil from disturbance. The soil profile here was somewhat more complicated than at JcRw 8 by the considerable thinning or even disappearance of the loess in some sections and variation of clay content in a matrix of loess and silt. Toward the south end of the site the soil profile becomes further complicated by the obvious inclusion of thicker bands of lake silts and slopewash material from the hillside. This proved to be a mixed blessing. It deepened the section but also spread in a series of dark bands or reddish bands, representing alternating lake inundation, thin humus development and slopewash conditions. The lake silts of today have a substantial bitumen content and it is to this that the thin black 'floors' are attributed. The site extends over 110 meters north and south and up to 25 meters east and west, averaging 10 meters wide. (Maps 1 & 2)

Throughout the site, the glacial clay and till show a considerably

less mature soil profile than on the upper terrace of JcRw 8 and no varve structure.

Cultural material belonging to four general cultural traditions have been distinguished from the field observations. Toward the south, the middle horizon splits into a series of geological 'floors', formed by the processes of sedimentation; alternatively lake, cultural and slope wash. It appears that it will be possible therefore, to distinguish a gradual change within the more broadly defined grouping. The earliest material lying well down in a silty lake clay is characterized by leaf-shaped bipoints, flake choppers, blade tools and burins. Within the loess deposition period and carrying on through the late loess period for some time, a series of Plano point types were found with a variety of other lithic materials; snub-nosed end scrapers, side-scrapers, choppers, burins and gravers. Three separate cultural sub-complexes can tentatively be distinguished in a long period of occupation. At the base of the humus and in the top of the soil, an as yet undefined assemblage was found having a preponderance of bifaces, with side notched points, microblades and small end scrapers. The general appearance of this material gives the impression of a fairly long period and possibly a mixture of several components. The spatial distribution of the material shows some differences in various parts of the site and it may be possible to sub-classify this material on the basis of areal distribution. Higher in the lower part of the humus, and over matted root and thin humus, a fairly good sample of late pre-contact material was recovered. This is typically late Athabascan material, small sidenotched points, bone fish spears, bone fleshers, small, flat, eared endscrapers.

JcRw 13 Julian Site

This site was discovered during the progress of the 1966 program, by the son of one of the workmen. The site lies on a small spur of till, now quite modified, some 40 feet below JcRw 8, about 17 feet above site JcRw 3 - (0 - 0 stake) and 29 feet above the present lake level. (Maps 1 and 2)

Two occupation horizons were found, the earlier lying in the upper loess and the later one lying at the base or very low in the humus. Only a limited test was done this summer to acquire a sample. The lower occupation did not provide sufficient material to allow placing it in the sequence with any dependability. The upper component close to the base of the humus seems to be a late Athabascan culture similar in many respects to the upper component of the JcRw 3 site.

Although it is probable that some slopewash has occurred, the main stratigraphy on this site is a loess over a partially mature soil profile.

Jc Rw 10 Sand Beach Site

The low extinct sand beach on which this site is located lay along the north shore of the lake during a period of higher lake level than present and probably early in the alluviation, filling at the north end of the lake basin. Most of the carried silt and sand appears to originate in the upper northern end of the valley. From its location, it would seem that this area would have been one of the first parts of the shore line silted up. (Maps 1 & 2)

The recovered cultural material consisted of several points, or of fragments, a number of scrapers and worked flakes, a series of thick flaked choppers and several possible gravers. The possibility

that this represents a multiple occupation will be tested. The material all comes from the upper part of a loose, but wet, sand and no stratigraphy was apparent. The site will be further excavated during the coming season.

JcRw 7 Spruce Site

A further test was carried out at this site on an extinct northeast shore of the lake. This site however, would have been one of the later sites cut off by lake silting. During the occupation period the site was a long, fairly wide rock and sand beach lying at about the same elevation as JcRw 3 and probably JcRw 10.

A number of trial squares were dug and some bone specimen and artifacts recovered. The occupation appears to be a late Plano hunting people using Agate Basin points, snubnosed end scrapers, and side scrapers.

Excavation must be preceeded by an orderly test program and it was felt that the available time this year was insufficient to properly assess the site. No carbon samples were obtained but a hearth was found, and represents a possible source of carbon for a date.

JcRw 14 Hughes Site

The geological history of the area, particularly for the late or post Pleistocene is quite inadequately known. Mapping of the late pro-glacial lakes and morraines along the western shield has helped but there remains the eastern cordillera from about 57° W to 65° N which has never been subjected to a close examination and analysis. Cognizant of the dependence upon this geological data for reconstructing cultural sequences, Dr. O. L. Hughes, of the Pleistocene Section of the Geological Survey of Canada, was asked for assistance.

During his preliminary examination a series of deep surface tests were made in various areas of the valley. In one such test, on the highest known terrace, 200 feet above present Fisherman Lake, a possible hearth was cut. The burned area was in the upper part of the mature soil, with a thin layer of green clay overlying the main hearth.

Subsequently, Mr. C. Eyman of the University of Calgary Archaeology Department and the writer, excavated a short test during which one worked flake and a crude chopper were recovered from the hearth horizon.

This site does not appear to be more than one period of occupation and from geological inference is the earliest material found in the Fisherman Lake area. It is hoped a carbon date will be available shortly on this hearth. The hearth is a heavy carbonaceous zone, having locally much fine carbon but little coarse material. The sample will require cleaning and carbon extraction.

ARCHAEOLOGICAL SEQUENCE

Since the soil pollen and faunal investigations have yet to be done, the environmental study must be left for the present. The archaeological material from all sites has now been washed and catalogued. Only a preliminary examination has been done as yet, and anything more than a suggestion of a sequence would be hazardous.

The results of the first years program have been gratifyingly successful. Some 40 carbon and bone samples were collected as potentially datable with the C14 method. It is noteworthy that dates would be of substantial value for the Pleistocene geological chronology for this area. The summer's program has provided real progress in

extensive definition of a number of archaeological phases and the local manifestation of the broader traditions.

The fortunate accidental discovery of the Hughes site, JcRw 14, is considered of major importance as a base phase to the sequence and possibly the remains of our earliest migrants. The excellent, however complicated, stratigraphy of the JcRw 3 site offers an exceptional opportunity to study the relationship of the earlier Cordillera with the late Plano, but in addition and equally important, the internal changes through time of the Plano hunters.

The late Athabascans of the area are now somewhat better defined and will be compared to other Athabascan archaeological material from adjoining and other areas. From this it may be possible to discern the relationship of the Athabascans to the previous inhabitants.

From the sequential reconstruction and environmental studies, from the character of the cultural units themselves and their inferred relation to previous archaeological results, the wider problem of population movement can be attacked.

The following is a preliminary sequence which may require amending as study proceeds.

a. Earliest level - probably shortly after glacial retreat during period of proglacial lake oscillation before glacial withdrawal - before mature soil development
   -chopper and worked flake associated with hearth-
   JcRw 14.

b. Occupation of glacial till dammed lake during early stages- pre-loess period and during development of mature soil in till top-occupation of lake shore on

tundra.

-unifacial flake tools with prepared striking platforms, choppers, several possible charcoal samples for potential dating - lowest component, JcRw 8.

c. Occupation of lake shore following release of water after breaking of till dam. During early loess blowing period, during which lake fluctuations periodically inundated the shore and the cultural floor, loess and lake silt covered.

-Lerma bipoints, flake choppers, crude end scrapers, burins - lowest component, JcRw 3.

d. Occupation of lake shore during fluctuating lake period - very late stage of loess deposition.

-series of Plano type points with stemmed points followed by lancelote and finally Browns Valley types- 3 lower middle components of JcRw 3 and JcRw 7.

e. Occupation of lake terrace, during the lake filling period. - microblades, large corner notched points.

f. Occupation of lake shore sandy beach during late stages of dry period and early stages of wet period before the extreme north end of the lake completely filled in.

- blades, Plano type flaking, corner notching on points, JcRw 10.

g. Occupation of 30 foot terraces (ill-defined) probably during periods of higher lake level.

-medium to large corner and side notched points,

side scrapers, bifaces.

-JcRw 1 JcRw 13

h. Occupation of low terraces with possibly seasonal occupation of back terraces.

-small and medium sized side notched points, bifaces, bone points, sideblades.

- upper level of JcRw 3, Upper JcRw 8 , JcRw 6.

The last three phases in particular require further investigation for possible changes in sequence or different phase splitting.

CHRONOLOGY

Any attempt to reconstruct the archaeological history must be cognizant of the basic limitations of the geological history. The area has not been subjected to a Pleistocene mapping program so general limitations must be extrapolated from without the area. Unfortunately there is little sound data available for any of the eastern Cordillera foothills area from the Porcupine to the Peace Rivers. Until the carbon samples have been analysed and carbon 14 dates received, the absolute chronology must be a matter of speculation as to general limits.

The earliest occupation followed by some unknown period the last glacial advance into the area. The period may have been substantial as considerable modification of the glacial till features is noted. However, the thin band of glacial clay overlying the hearth would suggest lake inundation. The site was probably occupied during some stage of a proglacial lake following the last glaciation. From the areal geology it is probable that this glacial period would be equivalent to Tazewill or classical Wisconsin at the latest.

Assuming that the glacial till was Tazewill which has an assumed maximum (from sea level fluctuation records) of 18,000 B.C., the withdrawal of the glacial sheet was complete as far as Great Slave Lake by 8,500 B.C. at the latest. The JcRw 14 site must have been occupied before 14,000 B.C. The lowest component at JcRw 8 appears typologically and geologically to follow fairly closely the earlier materials. Certainly the cultural material was deposited in the pre-loess blowing period. On the basis of loess derivation from the Laurentide outwash following the Tazewill or Cary, this material would date at before 12,500 B.C.

The bottom component of JcRw 3, the Cordillera material, appears to be about midway through the loess period and might be guessed at about 10,000 B.C. The earliest Plano material in JcRw 7 and JcRw 3 are covered by thin loess deposits which are derived from the Liard flats during the dry conditions of the Post Glacial Optimum. Upper Plano material postdates this and may last to 4000 B.C. MacNeish has proposed a date of 3-6000 B.C. for the early Northwest Microblade here.

For the late part of the sequence, it is necessary to speculate somewhat. The late Northwest Microblade material was deposited during the middle stages of the late alluviation (which has tentatively been attributed mainly to the return of wet weather following the post glacial optimum). The transition from the late Northwest Microblade through to the modern Athabascans is seen as a gradual change and adaptation to the boreal forest, hunting and fishing and collecting pattern of the modern people.

The unusually prolific archaeological data may be attributed to an

unusual combination of factors contributing to the environmental suitability of the area over a substantial time period. The valley environs are still considered one of the most generous hunting areas within reach of the inhabitants of Fort Liard. The white fish and pike in Fisherman Lake are, and have been, a major factor in the subsistence of the local Slave indians. In times past the raw material easily obtainable from a wide chert band outcropping low on Pointed Mountain was a utilitarian material for all tool manufacturers. The concentration of sites at the northwest corner of the lake might be attributed to the presence of a clear water spring located between JcRw 8 and JcRw 3.

The area sequence is developing and will be finally defined on the basis of next summers program and the laboratory work of the assisting specialists. The environmental and glacial chronology will enable a close correlation to the archaeological sequence. With the bracketing of the cultural and environmental data, the absolute chronology provided by the radiocarbon dating, will present a 'whole' picture for the extra-areal correlations.

The twofold direct object of the program will be satisfied. The area will provide an excellent hinge point for internal correlation in the north for past and much future work. The problem of external relations to the south will be investigated as the data becomes more complete and can be intelligently analysed.

As to the broader problem of early primitive human population movement, no generalizations are possible until the data of this area is analysed and cultural manifestations analysed in relation to adjoining and other areas.

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